



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,895	03/26/2004	Roland Lenormand	612.43694X00	7801
20457	7590	10/05/2005	EXAMINER	
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873			JACKSON, ANDRE K	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/809,895

Applicant(s)

LENORMAND ET AL. 

Examiner

André K. Jackson

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 5-11 is/are rejected.
- 7) ☒ Claim(s) 3,4,12 and 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 9, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1,2,5-9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lenormand et al. in view of Wiley.

Regarding claim 1, Lenormand et al. disclose in the patent entitled "Method of evaluating physical parameters of an underground reservoir from rock cuttings taken therefrom" evaluating, with a single equipment physical parameters such as the absolute permeability and the porosity of a fragmented natural or artificial porous medium such as a zone of an underground reservoir, from rock fragments taken in this medium including a stage of immersing fragments contained in a containment chamber in a liquid and of intermittently communicating the chamber containing the fragments with a source of liquid under pressure a stage of measuring the volume of liquid injected, a stage of modeling the evolution of the volume of liquid injected from a priori selected initial values at least for permeability and the residual gas saturation and a stage of iterative adjustment of the value of the physical parameters of the rock fragments so as to obtain the best possible adjustment of the modeled evolution of the volume injected with the measured evolution of the volume injected in the chamber (Abstract, Figure 1). Lenormand et al. do not disclose an accumulator containing an elastic volume of liquid, so as to compress the gas trapped in the pores of the rock and during the stage of immersion in the liquid, of the fragments contained in containment chamber, the volume of liquid injected is measured by measuring the concomitant pressure variation in the accumulator. However, Wiley discloses in the patent entitled "Method and apparatus for measuring rock permeability at

elevated pressures and temperature" that it is known to use an accumulator containing an elastic volume of liquid, so as to compress the gas trapped in the pores of the rock and during the stage of immersion in the liquid, of the fragments contained in containment chamber, the volume of liquid injected is measured by measuring the concomitant pressure variation in the accumulator (Abstract; Column 1, line 47; Column 4, lines 49-65 and Column 5, lines 1-18). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lenormand et al. to include an accumulator containing an elastic volume of liquid, so as to compress the gas trapped in the pores of the rock and during the stage of immersion in the liquid, of the fragments contained in containment chamber, the volume of liquid injected is measured by measuring the concomitant pressure variation in the accumulator. By adding this feature the apparatus would be able to accurately determine the permeability of a rock formation at elevated pressures.

Regarding claim 2, Lenormand et al. disclose where the modeling stage is also carried out from a priori selected initial values for porosity (Column 2, lines 1-36).

Regarding claim 5, Lenormand et al. disclose where the containment chamber is filled with drill cuttings (Abstract).

Regarding claim 6, Lenormand et al. do not disclose where the containment chamber is filled with rock fragments obtained by crushing cores taken in a well, notably cores obtained by sidewall coring of a well (Abstract; Column 1).

Regarding claim 7, Lenormand et al. do not disclose where the containment chamber is filled with rock fragments invaded by drilling fluids. However, Wiley does disclose where the containment chamber is filled with rock fragments invaded by drilling fluids (Abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lenormand et al. to include where the containment chamber is filled with rock fragments invaded by drilling fluids. By adding this feature the apparatus would be able to accurately measure the permeability of the fragments when drilling fluids are involved.

Regarding claim 8, Lenormand et al. disclose where the containment chamber is filled with previously cleaned rock fragments (Column 2).

Regarding claim 9, Lenormand et al. disclose evaluating physical parameters such as the absolute permeability and the porosity of a fragmented natural or artificial porous medium such as a zone of an

underground reservoir, from fragments taken in this medium including a processing system, a containment chamber for the fragments, an injection assembly for injecting a liquid into the chamber so as to the chamber containing the rock fragments, and for carrying out a cycle comprising a stage of liquid injection into the chamber, this assembly comprising, means for measuring the pressure in the chamber, processing system being suited for modeling the evolution of the volume of liquid injected from initial values selected for the physical parameters of the rock fragments, and for adjusting iteratively the values to be given to these physical parameters so as to obtain the best possible adjustment between the modeled evolution of the physical quantity and the measured evolution of the quantity in the chamber (Abstract, Figure 1). Lenormand et al. do not disclose an accumulator containing an elastic volume of liquid and means controlled by the processing system for controlling communication of accumulator with chamber containing the rock fragments and a means for measuring pressure variations in accumulator and in that processing system is suited for calculation of the volume of liquid injected in the chamber from the accumulator, from the pressure variation measured by pressure measuring means. However, Wiley discloses that it is known to use an accumulator containing an elastic volume of liquid and means controlled by the processing system for controlling communication of accumulator with chamber containing the rock fragments and a means for

measuring pressure variations in accumulator and in that processing system is suited for calculation of the volume of liquid injected in the chamber from the accumulator, from the pressure variation measured by pressure measuring means (Abstract; Figure 1; Column 1, line 47; Column 4, lines 49-65 and Column 5, lines 1-18). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lenormand et al. to include an accumulator containing an elastic volume of liquid and means controlled by the processing system for controlling communication of accumulator with chamber containing the rock fragments and a means for measuring pressure variations in accumulator and in that processing system is suited for calculation of the volume of liquid injected in the chamber from the accumulator, from the pressure variation measured by pressure measuring means. By adding this feature the apparatus would be able to accurately determine the permeability of a rock formation at elevated pressures.

5. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lenormand et al. in view of Wiley, and further in view of Rockley.

Regarding claim 10, Lenormand et al. do not disclose a gas tank that can be communicated with chamber by means of a valve, an instrument for measuring the envelope volume so as to determine the porosity of the fragments and means for measuring the mass of the



fragments. However, Rockley discloses in the patent entitled "Process and apparatus for analyzing cuttings from oil and gas wells" a gas tank that can be communicated with chamber by means of a valve, an instrument for measuring the envelope volume so as to determine the porosity of the fragments and means for measuring the mass of the fragments (Figures 1,2,3). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lenormand et al. to include a gas tank that can be communicated with chamber by means of a valve, an instrument for measuring the envelope volume so as to determine the porosity of the fragments and means for measuring the mass of the fragments. By adding this feature the apparatus would be able to determine the density of the samples.

Regarding claim 11, Lenormand et al. do not disclose where the envelope volume of the fragments to be tested comprises a powder pycnometer. However, Rockley discloses where the envelope volume of the fragments to be tested comprises a powder pycnometer (Abstract; Figures 1,2,3). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lenormand et al. to include where the envelope volume of the fragments to be tested comprise a powder pycnometer. By adding this feature the apparatus would be able to determine the density of the samples.

Art Unit: 2856

6. Claims 3,4,12,13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to André K. Jackson whose telephone number is (571) 272-2196. The examiner can normally be reached on Mon.-Thurs. 7AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A.J.

A handwritten signature in black ink, appearing to be 'A.J. Jackson', written over a horizontal line.

Application/Control Number: 10/809,895  
Art Unit: 2856

Page 10

September 30, 2005

A handwritten signature in black ink, appearing to read "Hezron Williams", with a long horizontal flourish extending to the right.

HEZRON WILLIAMS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800